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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/686,766 | 10/17/2003 | Tadatoshi Suzuki | 57454-982 | 9824 |

7590 10/03/2005

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| EXAMINER |
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ESHETE, ZELALEM

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| ART UNIT | PAPER NUMBER |
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3748

DATE MAILED: 10/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/686,766

Applicant(s)

SUZUKI ET AL.

Examiner

Zelalem Eshete

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1 and 3-7 is/are allowed.
- 6) ☒ Claim(s) 8, 9, 11, 12, 14, 15, 17, 18, 20, 21, 23, 24, 26, 27, 29 and 30 is/are rejected.
- 7) ☒ Claim(s) 10, 13, 16, 19, 22, 25 and 28 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is in response to the amendment filed on 4/18/2005.

Claim Objections

1. Claims 25-27 are objected to because of the following informalities: The term "caulked" is inappropriately used as a mating of shaft/support. Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 8,9,11,12,17,18,20,21,26,27,29,30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brothers (6,328,009) in view of Hirakawa et al. (6,012,851), 26,27,29,30.

Regarding claims 8,9: Brothers discloses a roller cam follower of an engine (see figures 1-9), comprising: an outer ring being in rolling contact with a camshaft of the engine (see numeral 30), a roller shaft located inside said outer ring and fixed to a cam

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follower body (see numeral 36); and bearing elements placed between said outer ring and said roller shaft (see numerals 32,35).

Brothers fails to disclose at least one of said outer ring, roller shaft and bearing elements has a carbonitrided layer and has a fracture stress/hydrogen content of at least/most 2650/0.5 Mpa/ppm.

However, Hirakawa teaches at least one of said outer ring, roller shaft and bearing elements has a carbonitrided layer (see column 3, lines 52 to 58; Table 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Brothers' device by providing carbonitrided layer as taught by Hirakawa in order to improve the physical properties of the device and thereby enhance the longevity of the device in engine operation. There is no reason to believe Brothers' device as modified above wouldn't yield the claimed numerical characteristic values.

Regarding claims 11,12: Brothers discloses said cam follower body is mounted on one end of a rocker arm, said rocker arm is pivotably attached to a rotational shaft located between said one end and the other end, one end of an open/close valve of said engine abuts on said other end (see figures 1,2), said cam follower body on said one end has a bifurcated roller supporting portion, and said roller shaft is fixed to said bifurcated roller supporting portion (see figure 9).

Regarding claims 17,18: Brothers discloses a rocker arm is pivotably attached to a rotational shaft located between one end and the other end of said rocker arm (see figures 1-9), an end of an open/close valve of said engine abuts on said one end (see numeral 20), said other end abuts on one end of an interlocking rod transmitting a stress from said cam (see numeral 16), said cam follower body is mounted on the other end of said interlocking rod (see numeral 14), said one end and said other end of said interlocking rod being located respectively on said rocker arm and said cam, and said roller shaft is attached to said cam follower body and abuts on said cam (see figures 1,2,9).

Regarding claims 20,21: Brothers discloses said bearing elements are full type needle bearings (see figures 1-9; column 2, lines 27 to 45).

Regarding claims 26,27,29,30: Brothers discloses the claimed invention as recited above except for caulked end and entirely press-formed. As to the method of caulking/press fitting, a product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983)

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4. Claims 8,9,14,15,26,27,29,30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Faville et al. (5,979,383) in view of Hirakawa et al. (6,012,851).

Regarding claims 8,9: Faville discloses a roller cam follower of an engine (see figures 1-3), comprising: an outer ring being in rolling contact with a camshaft of the engine (see numeral 42), a roller shaft located inside said outer ring and fixed to a cam follower body (see numeral 58); and bearing elements placed between said outer ring and said roller shaft (see numeral 60).

Faville fails to disclose at least one of said outer ring, roller shaft and bearing elements has a carbonitrided layer and has a fracture stress/hydrogen content of at least/most 2650/0.5 Mpa/ppm.

However, Hirakawa teaches at least one of said outer ring, roller shaft and bearing elements has a carbonitrided layer (see column 3, lines 52 to 58; Table 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Faville's device by providing carbonitrided layer as taught by Hirakawa in order to improve the physical properties of the device and thereby enhance the longevity of the device in engine operation. There is no reason to believe Faville's device as modified above wouldn't yield the claimed numerical characteristic values.

Regarding claims 14,15: Faville discloses said cam follower body is mounted between one end and the other end of a rocker arm (see figure 1), said roller shaft is

fixed in a roller hole extending between two sidewalls of the rocker arm (see figure 3), an end of an open/close valve of said engine abuts on said one end of said rocker arm, and a pivot abuts on said other end (see figure 1).

Regarding claims 26,27,29,30: Faville discloses the claimed invention as recited above except for caulked end and entirely press-formed. As to the method of caulking/press fitting, a product by process claim is rejected over a prior art product that appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983)

5. Claims 8,9,11,12,23,24,26,27,29,30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bando (JP63-185917) in view of Hirakawa et al. (6,012,851).

Regarding claims 8,9: Bando discloses a roller cam follower of an engine (see figure 4), comprising: an outer ring being in rolling contact with a camshaft of the engine, a roller shaft located inside said outer ring and fixed to a cam follower body; and bearing elements placed between said outer ring and said roller shaft (see figure 6).

Bando fails to disclose at least one of said outer ring, roller shaft and bearing elements has a carbonitrided layer and has a fracture stress/hydrogen content of at least/most 2650/0.5 Mpa/ppm.

However, Hirakawa teaches at least one of said outer ring, roller shaft and bearing elements has a carbonitrided layer (see column 3, lines 52 to 58; Table 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Bando's device by providing carbonitrided layer as taught by Hirakawa in order to improve the physical properties of the device and thereby enhance the longevity of the device in engine operation. There is no reason to believe Bando's device as modified above wouldn't yield the claimed numerical characteristic values.

Regarding claims 11,12: Bando discloses said cam follower body is mounted on one end of a rocker arm, said rocker arm is pivotably attached to a rotational shaft located between said one end and the other end, one end of an open/close valve of said engine abuts on said other end (see figure 4), said cam follower body on said one end has a bifurcated roller supporting portion, and said roller shaft is fixed to said bifurcated roller supporting portion (see figure 6).

Regarding claims 23,24: Bando discloses said roller shaft has its end with a hardness lower than that of its central portion (see abstract).

Regarding claims 26,27,29,30: Bando discloses the claimed invention as recited above except for caulked end and entirely press-formed. As to the method of caulking/press fitting, a product by process claim is rejected over a prior art product that

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appears to be identical, although produced by a different process, the burden is upon the applicants to come forward with evidence establishing an unobvious difference between the two. See *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983)

Allowable Subject Matter

6. Claims 10,13,16,19,22,25,28 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 1,3-7 are allowed.

Response to Arguments

8. Applicant's arguments with respect to claims 8-30 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

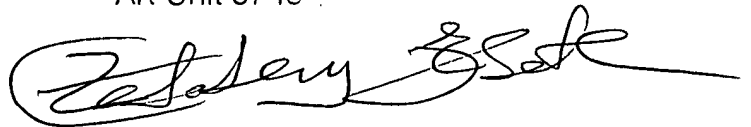

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zelalem Eshete whose telephone number is (571) 272-4860. The examiner can normally be reached on Monday to Thursday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Zelalem Eshete
Examiner
Art Unit 3748

A handwritten signature in black ink, appearing to read 'Zelalem Eshete', with a stylized flourish at the end.A handwritten signature in black ink, appearing to read 'Thomas Denion', with a stylized flourish at the end.

THOMAS DENION
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700